

U.S. Serial No. 10/747,603
Response to the Office action of June 27, 2005

Changes to the Drawings

Attached hereto is one sheet of drawings, including Figures 1-3, in substitution for sheet one of the originally-filed drawings. In the attached sheet of drawings, a Prior Art legend has been included in Figure 1 as required in the Office action. It is respectfully submitted that no new matter has been added.

Remarks

Claims 1-7 are pending and at issue. Of the claims at issue, claim 1 is the sole independent claim. In view of the foregoing amendments and the following remarks, reconsideration of the application is respectfully requested.

The Drawings

As explained above, submitted herewith is a substitute drawing sheet including a Prior Art legend for Figure 1. It is respectfully requested that any issues regarding the drawings have been addressed.

The Rejections Under 35 U.S.C. §§ 102 & 103

Claims 1, 5, and 6 were rejected as anticipated by the applicant's admitted prior art (AAPA) and claims 1 and 3-7 were rejected as anticipated by Liu (US 6,358,831). Additionally, claims 2-4, and 7 were rejected as unpatentable over AAPA in view of Sun (US 6,245,380) and claim 2 was further rejected as unpatentable over Liu in view of Sun. It is respectfully submitted that all claims are allowable over the cited art for the reasons set forth below.

Independent claim 1 is directed to methods of forming a bonding pad in a semiconductor device. Claim 1 recites, *inter alia*, forming a metal pad by removing some portions of a metal layer, wherein the metal pad is extended to some portion of the top surface of the second insulating layer; forming a third insulating layer over a second insulating layer and the metal pad; and exposing the extended metal pad on the top surface of the second insulating layer by removing some portion of the third insulating layer on the extended metal pad which is in contact with the top surface of the second insulating layer. Further, claim 1 recites that the exposed metal pad is displaced from the location at which the metal pad structure of the contact hole is attached to the top metal interconnect. As addressed below, it is respectfully submitted that none of the AAPA, Liu, and Sun discloses or suggests that the exposed metal pad is displaced from the location at which the metal pad structure of the contact hole is attached to the top metal interconnect.

It is well settled that “A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051 (Fed. Cir. 1987).

The AAPA, which is shown in FIG. 1 of the above-identified application, shows that a metal pad is connected to a top metal interconnect. However, FIG. 1 shows that the only portion of the metal pad that is exposed (i.e., not covered by the passivation layer) is the portion of the metal pad located directly over the top metal interconnect. The AAPA does not disclose that the exposed metal pad is displaced from the location at which the metal pad structure of the contact hole is attached to the top metal interconnect. To the contrary, the AAPA discloses that the exposed metal pad is directly over the location at which the metal pad structure of the contact hole is attached to the top metal interconnect. Thus, the AAPA does not disclose each and every element as set forth in claim 1. Accordingly, the AAPA cannot anticipate claim 1.

Liu discloses a method for forming a top interconnection level and bonding pads. As shown in FIG. 6D, the exposed bonding pad 60 is located directly over the metal feature 54. Thus, the exposed metal pad (i.e., the exposed portion of the bonding pad 60) is not displaced from the location at which the metal pad structure of the contact hole is attached to the top metal interconnect, which is the location at which the metal feature 54 resides. Liu does not disclose each and every element as set forth in claim 1. Accordingly, Liu cannot anticipate claim 1.

The Office action does not assert the Sun discloses or suggests that the exposed metal pad is displaced from the location at which the metal pad structure of the contact hole is attached to the top metal interconnect. Further, a brief review of the Sun specification and drawings confirms that Sun does not make such a disclosure. Thus, Sun fails to disclose each and every element of claim 1 and, therefore, cannot anticipate claim 1.

With regard to obviousness, it is well established that the prior art must teach or suggest each of the claim elements and must additionally provide a suggestion of, or an incentive for, the claimed combination of elements to establish a *prima facie* case of obviousness. See *In re Oetiker*, 24 USPQ. 2d 1443, 1446 (Fed. Cir. 1992); *Ex parte Clapp*,

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227 USPQ. 972, 973 (Bd. Pat. App. 1985); *In re Royka*, 490 F.2d 981 (CCPA 1974) and M.P.E.P. § 2143. As noted above, each of the AAPA, Liu, and Sun is deficient for failing to disclose that the exposed metal pad is displaced from the location at which the metal pad structure of the contact hole is attached to the top metal interconnect. Thus, it follows that no combination of these references can result in a disclosure including this element that is missing from each of the references individually. Thus, claim 1 cannot be obvious in view of any combination of the cited art.

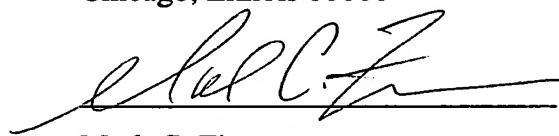
It is respectfully submitted that claim 1 is not anticipated by or obvious in view of the cited art and, therefore, claim 1 is allowable. Claims 2-7 depend from claim 1 are likewise allowable.

Reconsideration of the application and allowance thereof are respectfully requested. If there is any matter that the examiner would like to discuss, the examiner is invited to contact the undersigned representative at the telephone number set forth below.

Respectfully submitted,

HANLEY, FLIGHT & ZIMMERMAN, LLC
20 North Wacker Drive
Suite 4220
Chicago, Illinois 60606

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Mark C. Zimmerman
Reg. No. 44,006
Attorney for Applicants
312.580.1020